

### **REMARKS**

Claims 1-58 are pending in the application. Claims 1-26 and 34-56 have been withdrawn from further consideration. Claims 27, 33 and 45 are herein amended. Claims 57 and 58 are herein added. No new matter has been added.

#### **Support for Amendments to the Claims**

Support for newly amended claim 27 may be found in the as-originally filed specification, for example see page 45, lines 10-16.

Support for newly amended claim 45 may be found in the as-originally filed specification, for example see page 20, line 4 – page 21, line 17.

Support for new claim 57 may be found in the as-originally filed specification, for example see page 52, line 24 – page 53, line 53.

Support for new claim 58 may be found in the as-originally filed specification, for example see page 16, line 20.

#### **Support for Amendments to the Specification**

The specification as originally filed describes how styrene contents were measured by NMR. See present specification, page 89, line 17 – page 90, line 4; page 106, lines 14-19; page 121, lines 12-17. It is self-evident for a person of ordinary skill in the art that the determination of the styrene contents by NMR was based not on NMR data on the product (i.e., imide resin), but on NMR data on the raw material (i.e., methyl methacrylate-styrene

copolymer). The reason for this is as follows: In the NMR data on the product (imide resin), the peak of the protons derived from styrene was coincident with the peak of the protons derived from N-R<sup>3</sup> of General Formula (1). Thus, it is impossible to take individual readings of such peaks.

In addition, the styrene content of, for example, the commercially available resin MS-600 (methyl methacrylate-styrene copolymer) used as a raw material in the Examples can be easily specified as 40 mol% by referring to the refraction index indicated in its catalogue.

Therefore, it is self-evident for persons skilled in the art that the styrene contents described in the as originally filed specification are not with regards to the styrene content of the product (imide resin) but a styrene content of the raw material.

As such, Applicants respectfully request entry of the herein presented amendments to the present specification. Since the Amendments to the Specification herein presented do not add any new matter and are presented to clarify the presently claimed invention, entry of said amendment is respectfully requested.

#### **Summary of the Present Invention**

Prior to addressing the Examiner's specific rejections, Applicants submit the following brief summary of the present invention, which may assist in furthering the Examiner's understanding of the presently claimed invention.

The raw material, methyl methacrylate-styrene copolymer, (Estyrene MS-800 manufactured by Nippon Steel Chemical Co., Ltd) is used in Example 17 of the present

application. Example 17 of the present application possessed a styrene content, i.e., the repeating unit represented by General Formula (3), of 20 mol%. See present specification, Table 3, page 114. Thus, the raw material had a methyl methacrylate (MMA); i.e., the repeating unit represented by General Formula (2), content of 80 mol%. See present specification, Table 3, page 114. Further, the imidization ratio of the imide resin produced from the raw material was 69 mol%. See present specification, Table 3, page 114.

The imidization ratio refers to the proportion of the imidecarbonyl groups in the whole carbonyl groups in the imide resin. See present specification, page 106, lines 3-13. In the imide resin, the number of moles of the imidecarbonyl groups is 55.2 mol ( $80 \text{ mol\%} \times 69/100 = 55.2 \text{ mol}$ ), while the number of moles of the MMA is 24.8 mol ( $80 \text{ mol\%} \times (100-69)/100 = 24.8 \text{ mol}$ ). The repeating unit represented by General Formula (1) of the present application includes two imidecarbonyl groups.

The ratio of the repeating unit represented by General Formula (1), the repeating unit represented by General Formula (2), and the repeating unit represented by General Formula (3) is:

$$\begin{aligned} & 55.2/2 \text{ mol} : 24.8 \text{ mol} : 20 \text{ mol} \\ & = 27.6 \text{ mol} : 24.8 \text{ mol} : 20 \text{ mol} \\ & = 38.1 \text{ mol\%} : 34.3 \text{ mol\%} : 27.6 \text{ mol\%}. \end{aligned}$$

The weight of each repeating unit is determined by multiplying the number of moles by the molecular weight of the repeating unit.

Specifically, the weight of the repeating unit represented by General Formula (1) =  $27.6 \text{ mol} \times 167.2 = 4614.7$ ;

the weight of the repeating unit represented by General Formula (2) =  $24.8 \text{ mol} \times 104.2 = 2584.2$ ; and

the weight of the repeating unit represented by General Formula (3) =  $20 \text{ mol} \times 100.1 = 2002.0$ .

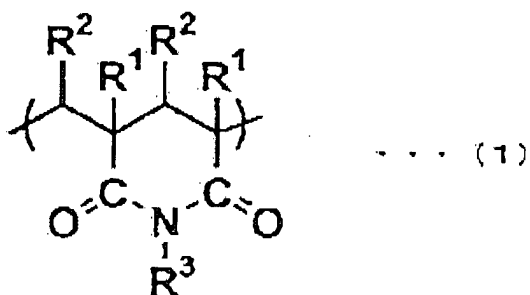
The styrene content with respect to the amount of total repeating units of the imide resin is therefore  $2002.07 / (4617.7 + 2584.2 + 2002.0) \times 100$ , which gives 21.8 wt%.

**Rejection under 35 U.S.C. 102(b)**

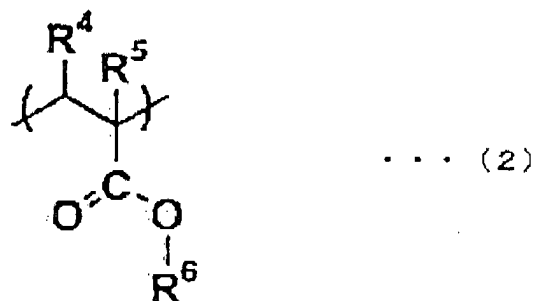
Claims 27-29 and 31-33 were rejected under 35 U.S.C. 102(b) as being anticipated by Fujii et al. (WO2001/37007) (hereinafter Fujii). Applicants respectfully traverse this rejection.

The polarizer-protective film of the presently claimed invention has at least two features, Feature A and Feature B.

In Feature A, the polarizer-protective film comprises an imide resin which includes a repeating unit represented by General Formula (1); a repeating unit represented by General Formula (2); and a repeating unit represented by General Formula (3),



where each of R<sup>1</sup> and R<sup>2</sup> independently represents a hydrogen atom or an alkyl group having 1 to 8 carbon atoms, and R<sup>3</sup> represents a hydrogen atom, an alkyl group having 1 to 18 carbon atoms, a cycloalkyl group having 3 to 12 carbon atoms, or an aryl group having 6 to 10 carbon atoms,



where each of R<sup>4</sup> and R<sup>5</sup> independently represents a hydrogen atom or an alkyl group having 1 to 8 carbon atoms, and R<sup>6</sup> represents an alkyl group having 1 to 18 carbon atoms, a cycloalkyl group having 3 to 12 carbon atoms, or an aryl group having 6 to 10 carbon atoms,



where R<sup>7</sup> represents a hydrogen atom or an alkyl group having 1 to 8 carbon atoms, and R<sup>8</sup> represents an aryl group having 6 to 10 carbon atoms.

In Feature B, the repeating unit represented by General Formula (3) is included in the imide resin by 5 wt% to 50 wt% with respect to the amount of total repeating units of the imide resin.

Fujii discloses a glutarimide type resin referred to therein as “thermoplastic resin A.” The glutarimide type resin of Fujii includes a repeating unit represented by Formula (5), a repeating unit of methyl methacrylate, and if necessary, a styrene type monomer. See Fujii (USP 6,964,814), Col. 10, lines 3-28.

However, Fujii clearly states that the glutarimide type resin may be optionally copolymerized with a styrene type monomer. See Fujii (USP 6,964,814), Col. 10, lines 24-28. Thus, Fujii fails to disclose the content of the styrene type monomer in the glutarimide type resin. Therefore, Fujii does not disclose at least Feature B of the presently claimed invention.

Furthermore, Fujii fails to disclose any specific example of an imide resin including the repeating units represented by the General Formulae (1), (2), and (3), the imide resin being included in the polarizer-protective film of the present invention.

Therefore, claim 27 of the present application is novel over Fujii. Furthermore, claims 28, 29, 31-33, 57 and 58, which are dependent on claim 27, are also novel over Fujii.

Favorable reconsideration is earnestly solicited.

**Rejection under 35 U.S.C. 102(b)**

Claims 27-33 were rejected under 35 U.S.C. 102(b) as being anticipated by Maurer et al (USPN 5,218,068) (hereinafter Maurer). Applicants respectfully traverse this rejection.

Maurer discloses as a usage of its polymer, a substrate for use in optical disks, lenses, and instrumental, cases and covers. However, Maurer fails to disclose a usage of its polymer as a polarizer-protective film included in a polarization plate for a liquid crystal display device or the like. See Maurer, Col. 3, lines 47-50; Col. 4, lines 33-44. The presently claimed polarizer-protective film, as a product, is completely different from the substrate of Maurer. As described in Maurer, the substrate (for use in the preparation of optical disks) is a molded product, which is produced in batches by injection molding. The substrate as such differs from a film such as a polarizer-protective film, and thus fundamentally differs in mode from such a film. For example, Example 1 of Maurer describes a compression molded plaque which is 3.2 mm in thickness. See Maurer, Col. 11, line 65. A commercially available optical disk has a thickness that exceeds 1000  $\mu\text{m}$ .

In contrast, the polarizer-protective film of the presently claimed invention has a thickness which is 300  $\mu\text{m}$  at most. The thickness is thus very small. See present specification, page 46, lines 13-18. Such a polarizer-protective film is produced by a melt extrusion method or a melt cast method.

In addition, the substrate of Maurer is not intended for use in, e.g., a liquid crystal display, and thus, completely differs in application from the polarizer-protective film of the presently claimed invention.

Thus, the presently claimed polarizer-protective film is unobvious from the substrate of Maurer.

Therefore, claim 27 of the present application is novel over Maurer. Furthermore, claims 28-33, 57 and 58, which are dependent on claim 27, are also novel over Maurer.

Favorable reconsideration is earnestly solicited.

**Rejections under 35 U.S.C. 103(a)**

Claim 30 was rejected under 35 U.S. C. §103(a) as being unpatentable over Fujii et al. Applicants respectfully traverse this rejection.

A feature of claim 30 of the present application is the imide resin having a molar ratio of the repeating unit represented by General Formula (1) and the repeating unit represented by General Formula (3) in the range of 1.0: 1.0 to 4.0: 1.0, i.e., Feature C. Thus, claim 30 of the present application recites at least Features A, B and C.

An unobvious and unexpected feature of the presently claimed invention is that the orientation birefringence can be adjusted by adjusting the molar ratio of the repeating unit represented by General Formula (1) and the repeating unit represented by General Formula (3), the repeating units being included in the imide resin. Claim 30 of the present application, which recites Feature C, consequently, achieves the unobvious and unexpected result of being able to adjust the orientation birefringence of the imide resin within the range from  $-0.1 \times 10^{-3}$  to  $0.1 \times 10^{-3}$ . See present specification, page 54, lines 2-19.



In contrast, Fujii does not disclose, teach, suggest or provide any reason for achieving an “orientation birefringence can be adjusted by adjusting the molar ratio of the repeating unit represented by General Formula (1) and the repeating unit represented by General Formula (3), the repeating units being included in the imide resin.”

Thus, it would not have been obvious to a person of ordinary skill in the art at the time of invention to achieve the presently claimed invention, including having an orientation birefringence adjusted by adjusting the molar ratio of the repeating unit represented by General Formula (1) and the repeating unit represented by General Formula (3) in the range of 1.0: 1.0 to 4.0: 1.0, based on the disclosure of Fujii. Further, claim 30 of the present application achieves an unobvious advantage that could not have been expected by a person of ordinary skill in the art at the time of invention based on the disclosure of Fujii.

Therefore, claim 30 of the present application is unobvious over Fujii. Favorable reconsideration is earnestly solicited.

In view of the above, Applicants respectfully submit that their claimed invention is allowable and ask that the rejections under 35 U.S.C. §102 and the rejection under 35 U.S.C. §103 be reconsidered and withdrawn. Applicants respectfully submit that this case is in condition for allowance and allowance is respectfully solicited.

If any points remain at issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local exchange number listed below.

Application No. 10/581,267  
Attorney Docket No. 062455

Amendment Under 37 C.F.R. §1.111  
Attorney Docket No.: 062455

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,  
**WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP**

/BERNADETTE K. MCGANN/

Bernadette K. McGann  
Attorney for Applicants  
Registration No. 65,127  
Telephone: (202) 822-1100  
Facsimile: (202) 822-1111

BKM/nrp/bam